

Provide a Quiet-Aire® Ecology Air Purification Unit (APU), Model # APU - ____ - ____ - ____ - ____ - ____ - ____ - ____ - ____ , assembled, wired and fully factory-tested prior to shipment. Unit shall be complete, including a filter section, air monitor cabinet, status panel, and all other options and components as specified below and as shown on the drawings. The APU shall have a capacity of _____ CFM (_____ L/S).

The complete APU assembly provided shall be ETL or ETL C listed, and the construction shall meet the requirements of national building codes, the local authority having jurisdiction, and NFPA 96.

The APU shall be used in conjunction with a listed water-wash or dry grease extracting exhaust ventilator (hood) having a minimum grease extraction rate of 90% by weight.

FILTER SECTION

The filter section, ETL or ETL C listed, housing shall be of double-wall construction with welded channel bracing for maximum rigidity and strength. A minimum of 1 1/2" fire proof mineral insulation will be fixed between inner and outer wall, roof and floor sheet steel. The inner housing walls shall be of 16-gauge steel, with all seams fully-welded liquid-tight. The outer housing walls shall be of 20-gauge steel, painted after fabrication. The housing is to include a supporting base comprised of full-length 3" minimum structural longitudinal and cross-bracing channel members. Refer to project drawings for actual channel member sizing. The base shall be configured so the filter section can be suspended from above, if required. The filter section shall further comprise:

- A. For particulate grease and smoke abatement, a three stage filtration system, with a nominal 500 FPM filter face velocity, and comprising three-stages of filtration:
1. A first stage pre-filter is a 4" deep pleated type and is an ASHRAE standard rated MERV 8 (30-35% Eff.), UL Class 2
 2. A second stage bag-filter is a 22" deep bag type and is an ASHRAE standard rated MERV 15 (90-95% Eff.), UL Class 2
 3. A third stage box-filter is a 12" deep, fire rated, absolute filter and is an ASHRAE standard rated MERV 16 (98% Eff.), UL Class 1
- B. Hinged access doors with toggle-type latches provide for complete access to the filters. Doors and panels shall be double-wall construction with the outer wall of 16 gauge steel and the inner wall of 16 gauge steel and further include ETL/ETL C fire rated gaskets to form a grease tight seal when closed.
- C. A UL/ULC listed fire damper at the discharge end. The damper shall be actuated by a 165°F fusible link.
- D. A firestat, located within the filter section, when activated at 200°F, will shut off the exhaust fan and transmit a fire alarm signal to the remote status panel.
- E. A monitoring system, measuring the differential pressure across each filter stage, and monitoring a final filter out condition. Pressure switches wired to send signals to the remotely located status panel, shall be housed within a unit-mounted, air monitor cabinet on the filter section.

F. **Optionally** supply “ANSUL” brand fire suppression pre-piping and suppression nozzles facing the lead face of the first filter bank and the trailing face of the final filter bank. Piping and nozzles to be factory installed by certified technicians. Chemical supply system and activation devices are to be supplied by others.

ODOR CONTROL

If odor abatement is to be included, the filter section housing shall be extended to incorporate an odor control module consisting of:

PLEASE CHOOSE ONE OF THE TWO SELECTIONS LISTED BETWEEN THE RED LINES BELOW

Odor Neutralization: Provide one **or two** unit-mounted odor spray cabinet(s) housing a 5 gallon tank, a liquid spray compressor, one nozzle, and fuse-protected circuitry with spray and delay period adjustable timers.

Optionally, equip the odor spray cabinet(s) with the HS heater option for use in environments that fall below 32°F.

OR

Potassium Permanganate and Activated Carbon: Provide a V-bank array of 2” deep perforated trays containing a 50%-50% blend of activated alumina spheres impregnated with potassium permanganate for oxidizing odor molecules, and activated carbon for absorption/adsorption of the odor molecules in the passing airstream. The trays are to include removable front panels to facilitate the changing of the media spheres.

BLOWER SECTION

Blower to have a capacity of _____ CFM (_____ L/S) at _____ inches W.C. (_____ Pa) external static pressure. This section, ETL or ETL C listed, to include a complete airfoil backward curved fan wheel and scroll assembly, Class T2 construction, connected to a TEFC inverter rated motor by a V-belt drive, and a combination magnetic motor starter and disconnect panel. The motor starter panel is surface mounted on the section housing, wired and factory-tested prior to shipment.

The starter and disconnect panel shall be:

PLEASE CHOOSE ONE OF THE THREE SELECTIONS LISTED BETWEEN THE PURPLE LINES BELOW

TYPE 1 for indoor installation

OR

TYPE 3R for outdoor installation

OR

Supply a variable frequency drive unit to allow fan speed control required for energy efficient kitchen operation. A line reactor is supplied to protect the VFD circuitry. The VFD and line reactor is to be mounted in a NEMA 1

(indoor) or NEMA 4 (outdoor) enclosure and attached to the blower casing. The 0 to 10V control signal is provided by others.

The fan and drive assembly shall be supplied with spring type vibration isolators. Fan motor to be _____ HP, _____ Volts, ____ Phase, _____ Hz.

The centrifugal blower scroll and inlet bell shall be constructed of heavy gauge steel. The blower shall be DWDI, and the fan wheel shall include airfoil, backward inclined, curved, non-overloading type blades. The blower shall be licensed to bear the AMCA Certification Seal. The fan shaft will be hardened steel, accurately turned and polished. Fan bearings shall be anti-friction ball pillow block type, with grease fittings for periodic lubricating.

The V-belt drive and motor shall be on a common chassis base with the blower, shall include oil resistant, non-static belts, and have capacity of approximately 25% more than the motor brake horsepower.

PLEASE CHOOSE ONE OF THE THREE SELECTIONS LISTED BETWEEN THE BLUE LINES BELOW

This section is mated to the filter section, forming a single integral packaged unit. See project drawings for section and air discharge arrangements.

OR

This section is to be remote mounted from the filter section. See project drawings for section and air discharge arrangements.

OR

This section is integral to the filter section. Vertical oriented upright units are designed for indoor & floor mounting only.

The roof, outside walls and floor shall be of 16-gauge steel. The roof liner, inner housing walls and floor liner shall be of 20-gauge sheet steel. A minimum of 2" fire proof mineral insulation will be fixed between inner and outer wall, roof and roof liner, and floor and floor liner sheet steel.

The entire section is to be primed and painted after fabrication. The section housing to include a base similar to that provided with the filter section, also configured so the section can be suspended from above.

STATUS PANEL:

Provide a NEMA 4X status panel, ETL or ETL C listed, for remote mounting, with a housing constructed of grade 304 stainless steel, water-tight access door with security fasteners. The cabinet is to include a fuse-protected circuitry including a step-down transformer with a 24-volt secondary winding, unit prove out timer, relays, and status pilot light indicators in the face of the panel to continually monitor the status of the APU.

OPTIONALLY: A fan stop delay timer is supplied on all units as standard equipment. It is meant for UV hood applications where the byproducts from UV cleaning should be exhausted for 10 minutes after UV source lights are turned off.

PLEASE CHOOSE ONE OF THE THREE SELECTIONS LISTED BETWEEN THE GREEN LINES BELOW

The status panel shall be an **ACD** model which is meant for kitchen staff operation and monitoring. Individual indicators shall be designated for Fan On/Off Push Button, Power On, Filter Out, Fire, Replace Pre-Filter, Replace Bag-Filter, Replace Box-Filter, Alarm Buzzer, Buzzer Mute Push Button, Low Odor Liquid **(optional)**.

A voltage free dry contact closing on any alarm condition providing for remote monitoring of the system.

OR

The status panel shall be an **ACW** model which is meant for hood equipment control by a water wash or UV control panel and visual status monitoring by kitchen staff. Individual indicators shall be designated for Fan On, Power On, Filter Out, Fire, Replace Pre-Filter, Replace Bag-Filter, Replace Box-Filter, Alarm Buzzer, Buzzer Mute Push Button, Low Odor Liquid **(optional)**.

One 110V control relay is provided for fan start and stop signal from the hood equipment controller.

A voltage free dry contact closing on any alarm condition providing for remote monitoring of the system.

OR

The status panel shall be an **ACW-HOA** model which is meant for a building management system (BMS) control and monitoring, or maintenance staff operation and monitoring. Individual indicators shall be designated for Fan On, Power On, Filter Out, Fire, Replace Pre-Filter, Replace Bag-Filter, Replace Box-Filter, Alarm Buzzer, Buzzer Mute Push Button, Low Odor Liquid **(optional)**.

HAND-OFF-AUTO key switch mounted on face of cabinet allows for remote control and monitoring by the BMS when in AUTO.

Relays to provide all APU status signals to the BMS including Fan On, Filter Out, Fire, Replace Pre-Filter, Replace Bag-Filter, Replace Box-Filter, Low Odor Liquid **(optional)**. A voltage free dry contact for air make up is also provided.
